

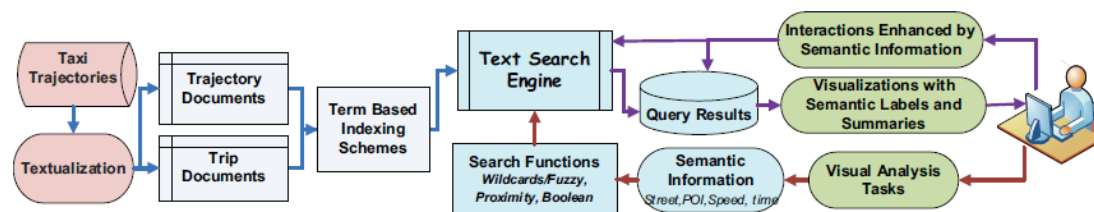
Weekly report

1 Done

1.1 Reading

1.1.1 SemanticTraj: A New Approach to Interacting with Massive Taxi

(Shamal AL-Dohuki):

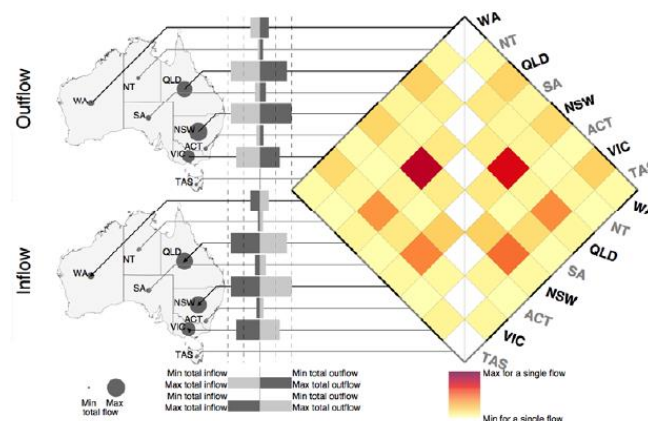


The figure above explains the framework of semanticTraj. In the processing part (purple lines), trajectories are transformed to textualization (the precise location is replaced by street nearby) and stored in trajectory documents and trip documents for indexing. In the searching part (red lines), they start from visual analysis tasks, focus on semantic information and then, they choose appropriate search function to build search engine. Finally, in the visualization part, the system responds user interaction (query requests) by returning related visualizations.

1.1.2 Many-to-Many Geographically-Embedded Flow Visualisation:

An Evaluation (Yalong Yang):

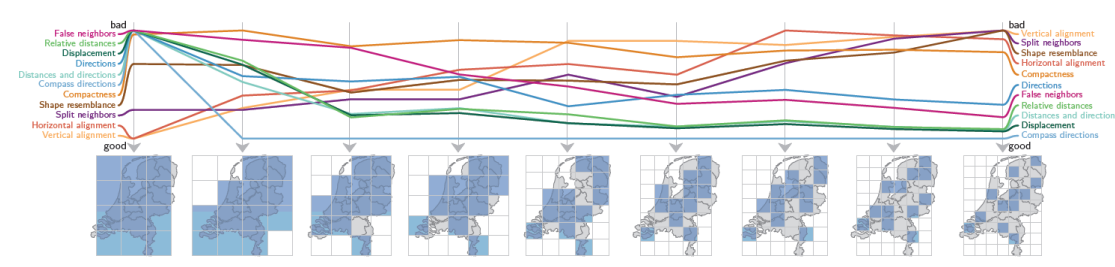
Most of this work is finished a doctoral student in his first year. With the advices of his mentors and a lot of user studies, the system has changed many times to pursue better results. For example, through the ingenious rotation, the order of the two directions of matrix become the same. Same order plays a significant role in the process of user understanding.



Besides, some attempts are proved unnecessary. For instance, the matrix is often symmetry, so they tried to remove the overlap for saving space. However, user study turned that half matrix is not as readable as the whole one, so they choose to keep the overlap. The original design is not complicated, but this system is improved by the results of evaluation again and again, which is worth to learn from.

1.1.3 Small Multiples with Gaps (Wouter Meulemans):

The report of second paper mentioned about “small multiples” and I never heard of it before, thus I read a paper related to small mutiples.



To preserve the spatial distribution, we have to add gaps to small-multiples layout. Hence, there is a trade-off between preserving the spatial distribution and reducing whitespace. This system provides many metrics to capture quality aspects of a small-multiples layout.

1.1.4 Privacy issue

I-Diversity: Privacy Beyond k-Anonymity (Ashwin Machanavajjhala)

t-Closeness: Privacy Beyond k-Anonymity and I-Diversity (Ninghui Li)

t-Closeness through Microaggregation: Strict Privacy with Enhanced

Utility Preservation (Jordi Soria-Comas)

I read this group of papers to know about data processing methods for dealing with privacy issues. Related information can be found in another document titled “New Idea”.

1.2 Discussion

1.2.1 Map information

We had a meeting about map information on Monday. We tried system personally and found some problems.

- 1) It's hard to learn how to use timeline view, but without it, users can't get enough information from trajectories. So, we decide to show trajectory details (periodic trajectory, abnormal trajectory and so on) in the form of textual description. This

change will lead users to focus on important parts so that our tasks will be simplified effectively.

- 2) Finding real location by baidu map is not convenient. For instance, it can't inquiry the distribution of more than one types of poi simultaneously. So, we decide to build control system to help user integrate related information.

1.2.2 **New idea**

I have a new idea about privacy visualization, which can be found in another document. I discussed this idea with Tianyi and Yuxin.

- 1) It lacks a clear analytical process.
- 2) It has an application prospects to some extents.